



Quandary Consultants

Mike Dinkel

2252 Emerson St.

Denver CO 80205

January 03, 2025

Project Name - KMG - REI H9-32D,H9-33D,UPRC 9-12J5 **Project Number - [none]**

Attached are your analytical results for KMG - REI H9-32D,H9-33D,UPRC 9-12J5 received by Origins Laboratory November 21, 2024. This project is associated with Origins project number E4K0676-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory
303.433.1322
projectmanager@originslab.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645



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Mike Dinkel
Project Number: [none]
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9-12J5

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
FL-B03V@8'	E4K0676-01	Soil	November 21, 2024 13:11	11/21/2024 14:47
FL-B11V@14'	E4K0676-02	Soil	November 21, 2024 13:33	11/21/2024 14:47

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Jen Pellegrini For Jordan A. Bynon, Project Manager

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FC100676

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1725 Elk Place Denver, CO 80211 #303.433.3222 origins@cd.com
 Temp Received - 54
 Received On Ice? Yes No
 Standard

#	Sample ID	Date Sampled	Time Sampled	# of Containers	Matrix Preservative	Analysis		Comments
						AS	PH	
1	F-10031008'	11/21/24	13:11	1	NA	X		
2	F-10031008'	11/21/24	13:33	1	NA	X		
3	F-10031008'	11/21/24	13:33	1	NA	X		
4								
5								
6								
7								
8								
9								
10								

Client: KERR/McGEE OIL/GAS ON SHORE LP
 Project Manager: Mike Dinkel
 Address: 541 N. DIVISION ST
 Project Name: REI H9-32D/H9-33D/UPRC 9-12J5
 Project Number: PLATEAU LEO
 Project Number: ME Water
 Telephone Number: 295-691-7788
 Collected By: RS ST
 Invoice/Billing Info: EFC/McGeebon
 Email Address: Mike.Dinkel@originslab.com
 Key: GW-Groundwater
 SW-Surface Water
 WW-Wastewater
 L-Liquid

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Sample Receipt Checklist

F-012207-01-R1
Effective Date: 01/09/12

Origins Work Order: E41C0690

Client: Quandary

Checklist Completed by: M, KK

Client Project ID: REI H9-32D, H9-33D

Date/time completed: 11/22/24

Shipped Via: HD UPRC 9-12J5
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: N/A

Matrix(s) Received: (Check all that apply): Soil/Solid

Water

Other:

Cooler Number/Temperature: 1 15.4 °C / °C / °C (Describe)

Thermometer ID: 1007

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is there ice present (document if blue ice is used)?	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)	<input checked="" type="checkbox"/>			
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)	<input checked="" type="checkbox"/>			
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.	<input checked="" type="checkbox"/>			
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) (pH < 2 for samples preserved with HNO ₃ , HCL, H ₂ SO ₄) / (pH > 10 for samples preserved with NaAsO ₂ ·NaOH, ZnAc ₂ ·NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾If NO, then contact the client before proceeding with analysis and note date/time and person contacted as well as the corrective action to be taken in the additional comments (above) and the case narrative.

Reviewed by (Project Manager) AD

11/25/24
Date/Time Reviewed

Origins Laboratory



Jen Pellegrini For Jordan A. Bynon, Project Manager

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Project Number: [none]
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9-12J5

FL-B03V@8'

11/21/2024 1:11:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0676-01 (Soil)

pH in Soil by 9045D

pH	8.51			pH Units	1	B4K2630	11/26/2024	11/27/2024	
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FL-B11V@14'

11/21/2024 1:33:00PM

Analyte	Result	Min Detection Limit	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory
E4K0676-02 (Soil)

pH in Soil by 9045D

pH	8.58			pH Units	1	B4K2630	11/26/2024	11/27/2024	
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Table 915 metals by EPA 6020B

Arsenic	4.45		0.270	mg/kg	10	B4K2231	11/22/2024	12/02/2024	
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Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K2231 - EPA 3050B

Prepared: 11/22/2024 Analyzed: 12/02/2024

Blank (B4K2231-BLK1)

Arsenic	ND	0.290	mg/kg							U
Barium	ND	10.0	"							U
Cadmium	ND	0.100	"							U
Copper	ND	10.0	"							U
Lead	ND	1.00	"							U
Nickel	ND	1.00	"							U
Selenium	ND	0.260	"							U
Silver	ND	0.100	"							U
Zinc	ND	37.0	"							U

LCS (B4K2231-BS1)

Prepared: 11/22/2024 Analyzed: 12/02/2024

Arsenic	5.35	0.290	mg/kg	5.00		107	80-120			
Barium	566	10.0	"	500		113	80-120			
Cadmium	5.40	0.100	"	5.00		108	80-120			
Copper	56.8	10.0	"	50.0		114	80-120			
Lead	5.52	1.00	"	5.00		110	80-120			
Nickel	5.73	1.00	"	5.00		115	80-120			
Selenium	5.68	0.260	"	5.00		114	80-120			
Silver	5.86	0.100	"	5.00		117	80-120			
Zinc	57.4	37.0	"	50.0		115	80-120			

Matrix Spike (B4K2231-MS1)

Source: E4K0638-02

Prepared: 11/22/2024 Analyzed: 12/02/2024

Arsenic	8.67	0.249	mg/kg	4.30	3.88	111	75-125			
Barium	686	8.60	"	430	140	127	75-125			QM-07
Cadmium	4.85	0.0860	"	4.30	0.104	110	75-125			
Copper	54.6	8.60	"	43.0	5.80	113	75-125			
Lead	10.5	0.860	"	4.30	6.62	89.8	75-125			

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Metals by EPA 6000/7000 Series Methods - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K2231 - EPA 3050B

Matrix Spike (B4K2231-MS1)

Source: E4K0638-02

Prepared: 11/22/2024 Analyzed: 12/02/2024

Nickel	9.89	0.860	mg/kg	4.30	5.53	102	75-125			
Selenium	4.71	0.224	"	4.30	0.175	105	75-125			
Silver	5.22	0.0860	"	4.30	0.0163	121	75-125			
Zinc	70.4	31.8	"	43.0	30.6	92.5	75-125			

Matrix Spike Dup (B4K2231-MSD1)

Source: E4K0638-02

Prepared: 11/22/2024 Analyzed: 12/02/2024

Arsenic	8.00	0.267	mg/kg	4.60	3.88	89.5	75-125	8.03	20	
Barium	696	9.20	"	460	140	121	75-125	1.48	20	
Cadmium	5.15	0.0920	"	4.60	0.104	110	75-125	6.06	20	
Copper	58.5	9.20	"	46.0	5.80	115	75-125	6.94	20	
Lead	11.5	0.920	"	4.60	6.62	105	75-125	8.92	20	
Nickel	10.8	0.920	"	4.60	5.53	114	75-125	8.65	20	
Selenium	5.06	0.239	"	4.60	0.175	106	75-125	7.17	20	
Silver	5.55	0.0920	"	4.60	0.0163	120	75-125	6.08	20	
Zinc	76.0	34.0	"	46.0	30.6	98.8	75-125	7.75	20	

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Saturated Paste - Quality Control
Origins Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B4K2630 - Saturated Paste pH/EC

Duplicate (B4K2630-DUP1)

Source: E4K0620-21

Prepared: 11/26/2024 Analyzed: 11/27/2024

pH	8.77		pH Units		8.71			0.687	25	
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Notes and Definitions

- U Sample is Non-Detect.
 - QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
 - ND Analyte NOT DETECTED at or above the reporting limit
 - RPD Relative Percent Difference
- All soil results are reported on a wet weight basis.

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